SIGNIFICANT WEATHER OBSERVATION PROGRAM

National Weather Service Central Illinois
December Meeting

Billy Ousley

Meeting Outline

- About the SWOP program
- 2008 Weather in Review
- Severe Weather Reporting
- Winter Weather Training
- Questions

About SWOP

- Unique to NWS Lincoln
- Created to provide forecast staff with real-time weather data during significant events
- Expanded to include day-to-day weather
- Currently over 200 members

SWOP Features

- E-mail notification letting you know of impending significant weather
  (usually at least 24 hours heads-up)
- Weekly Weather Discussion
- SWOP Rainfall/Snowfall maps placed online
- Significant Weather Event summaries
- Annual meetings and other events

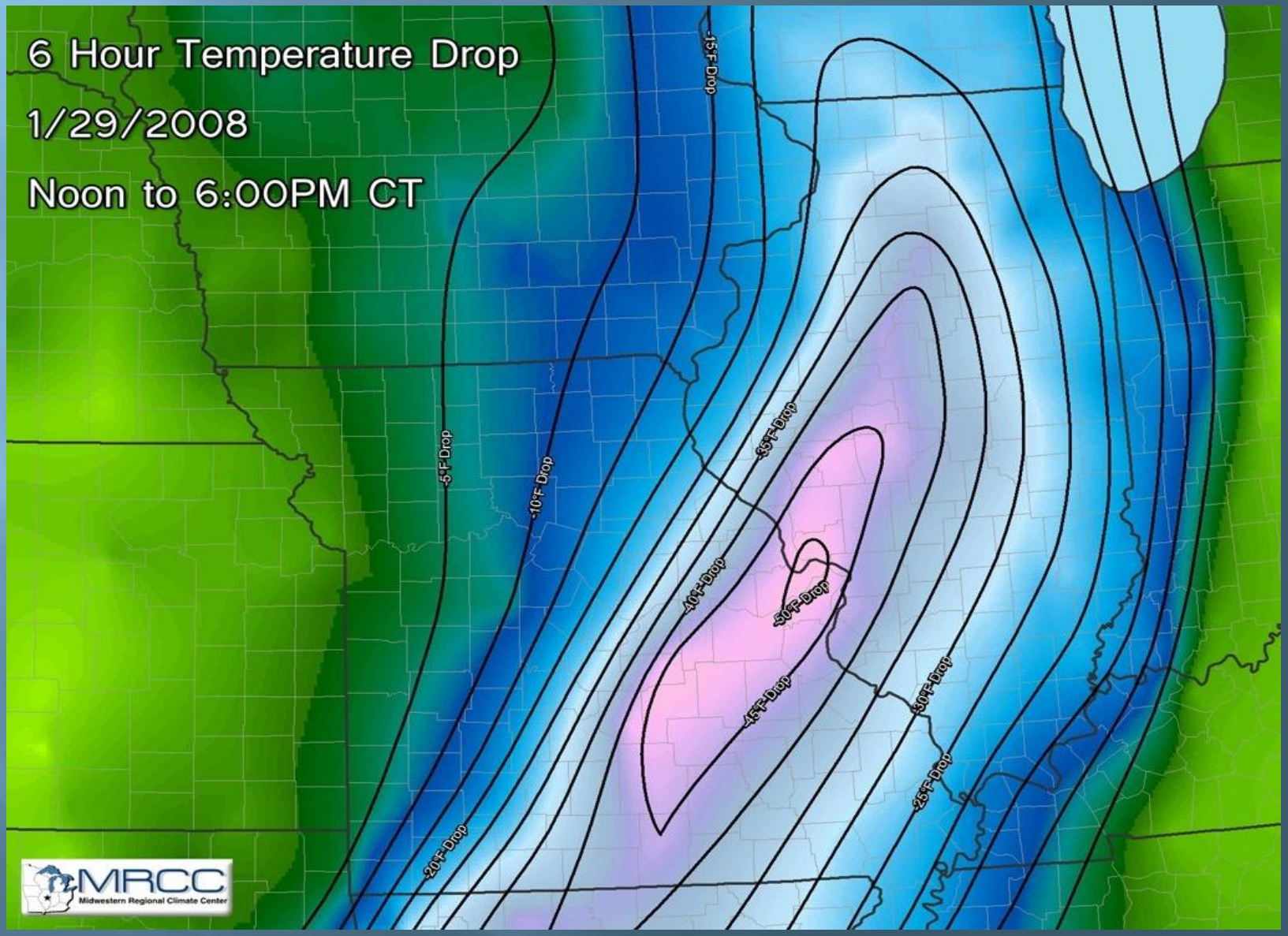
2007-2008 Winter Weather Season

- 2 significant events:
  - January 29 "Flash Freeze"
  - January 31-February 1 Heavy Snow

January 29 overview

- Record warmth across central Illinois on Jan 29
  Springfield: **64** Lincoln NWS: **62**
- Arctic cold front pushed into the area around midday, triggering strong to severe thunderstorms
- Damaging winds and hail
  Allenville 1S: 66mph wind gust
  Petersburg 8E: 57 mph wind gust
  Greenview 3S: half-inch diameter hail
- Plummeting temperatures after front passed caused moisture to instantly freeze on all exposed surfaces
- Temperatures dropped **30** to **50** degrees in about 4 to 6 hours!

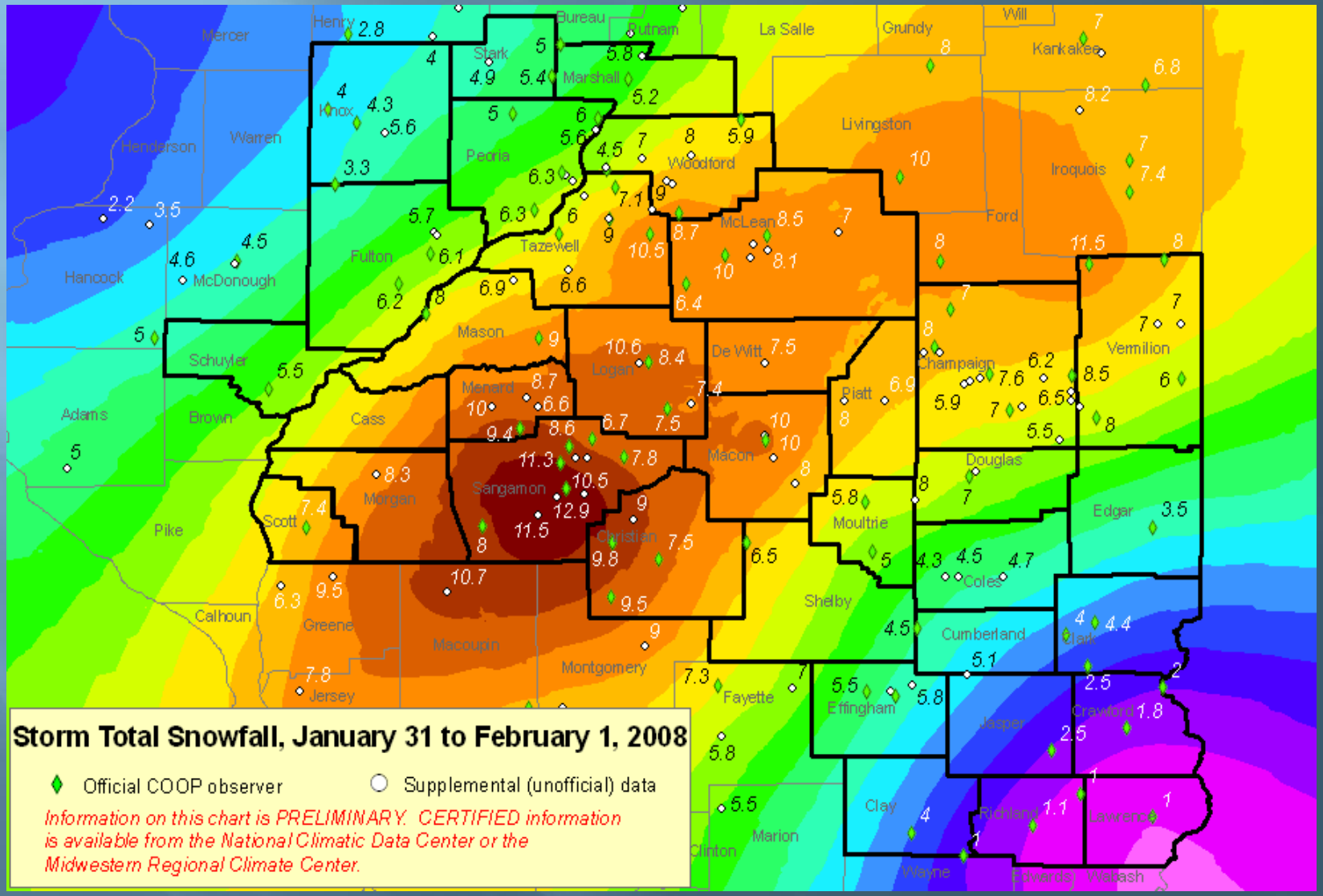
January 29


6 Hour Temperature Drop
1/29/2008
Noon to 6:00PM CT
-15°F Drop
-5°F Drop
-10°F Drop
-35°F Drop
-40°F Drop
-50°F Drop
-45°F Drop
-30°F Drop
-25°F Drop
-20°F Drop
MRCC
Midwestern Regional Climate Center

January 31-February 1 overview

- A strong upper-level disturbance tracked out of the Rockies and helped trigger surface low pressure over Oklahoma
- Surface low deepened and tracked northeastward into the Ohio Valley
- Snow became heavy at times during the evening and overnight hours
- **Thunder** was reported in some of the heavier snow bands, particularly across Sangamon and Macon counties
- Widespread **8 to 11** inch accumulations along the I-55 corridor…with lesser amounts further east and west
- Mix of rain…sleet…and snow kept accumulations under 3 inches south of I-70

January 31-February 1



2008 Severe Weather Season

- Much more active than 2007!
- **12** tornadoes in the Lincoln NWS area so far in 2008 as compared to **6** last year!
- Flooding rain along and south of I-70 in April and May
- Several high wind events in June and July
- More heavy rain associated with tropical systems in September

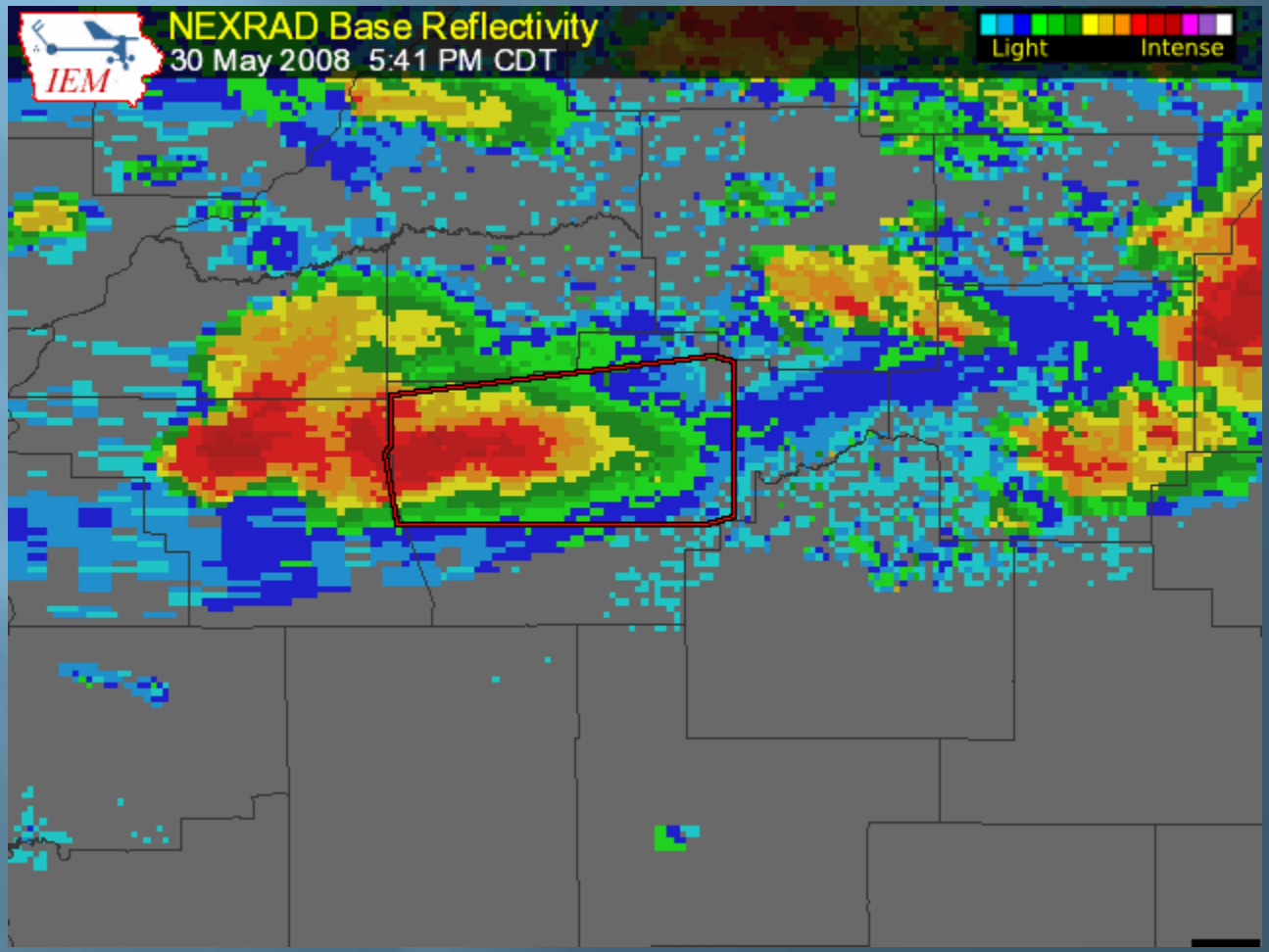
2008 Severe Events

- **May 30:** Very large hail
- **June 6-7:** Excessive rainfall and flooding along I-70
- **June 27:** Strong winds from Effingham and Flora eastward to the Indiana border
- **July 21:** Widespread wind damage across the Illinois River Valley
- **August 5:** Another widespread damaging wind event across the Illinois River Valley
- **September 3-4:** Heavy rain associated with remnants of Hurricane Gustav
- **September 11-14:** Torrential rain and high wind associated with remnants of Hurricane Ike

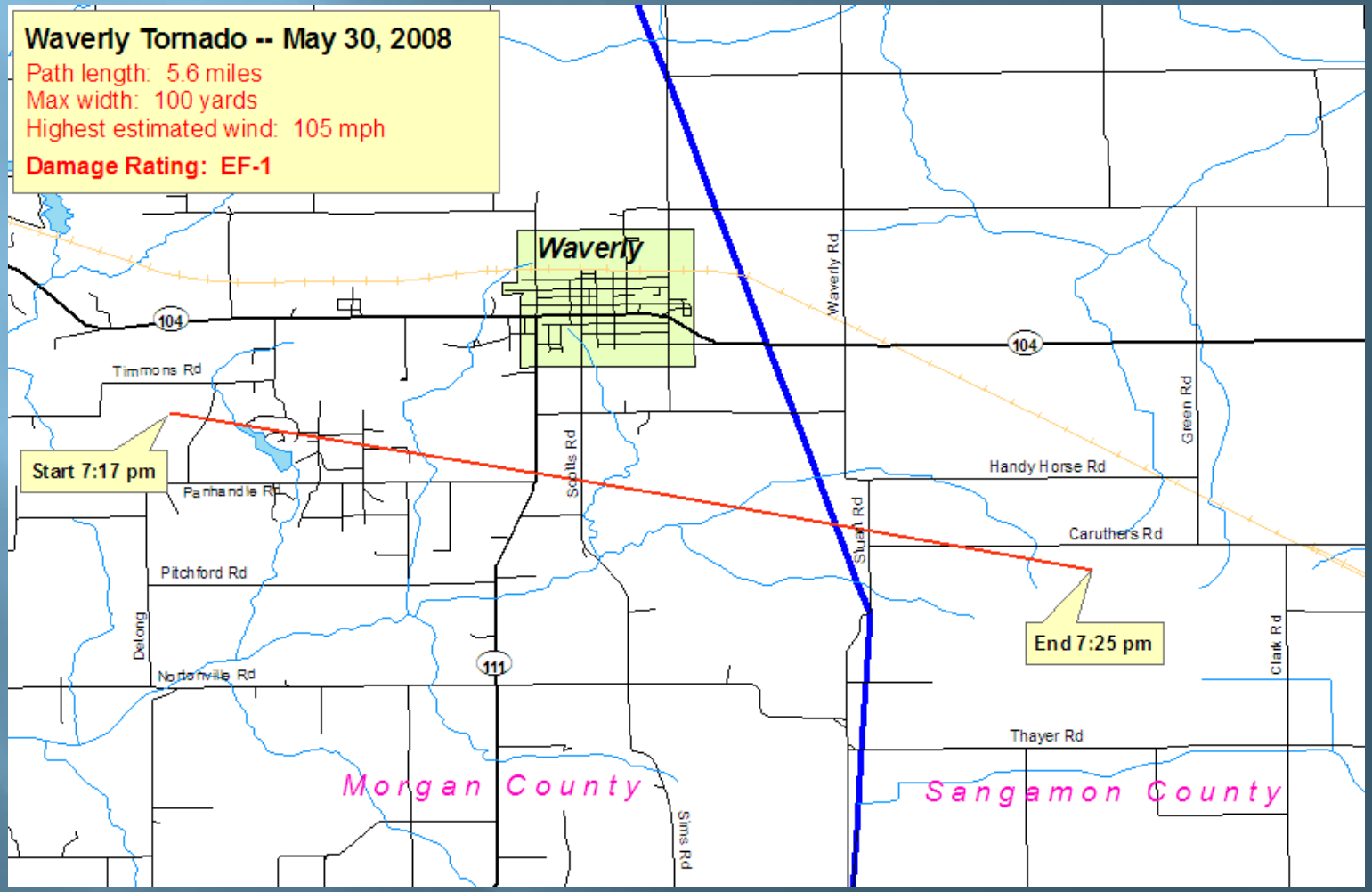
May 30

- Supercell thunderstorms developed in advance of a potent storm system
- Numerous reports of large hail…especially along the I-72 corridor
- New Berlin: 3.25" diameter hail
  Philo: 4.25" hail (softball sized)
- EF1 Tornado near Waverly (Morgan County)

May 30


IEM
NEXRAD Base Reflectivity
30 May 2008 5:41 PM CDT
Light
Intense

May 30


Waverly Tornado -- May 30, 2008
Path length: 5.6 miles
Max width: 100 yards
Highest estimated wind: 105 mph
Damage Rating: EF-1
Waverly
104
104
Timmons Rd
Start 7:17 pm
Panhandle Rd
Pitchford Rd
Delong
Nortonville Rd
111
Scotts Rd
Waverly Rd
Shuey Rd
Green Rd
Handy Horse Rd
Caruthers Rd
End 7:25 pm
Clark Rd
Thayer Rd
Morgan County
Sangamon County
Sims Rd

June 6-7

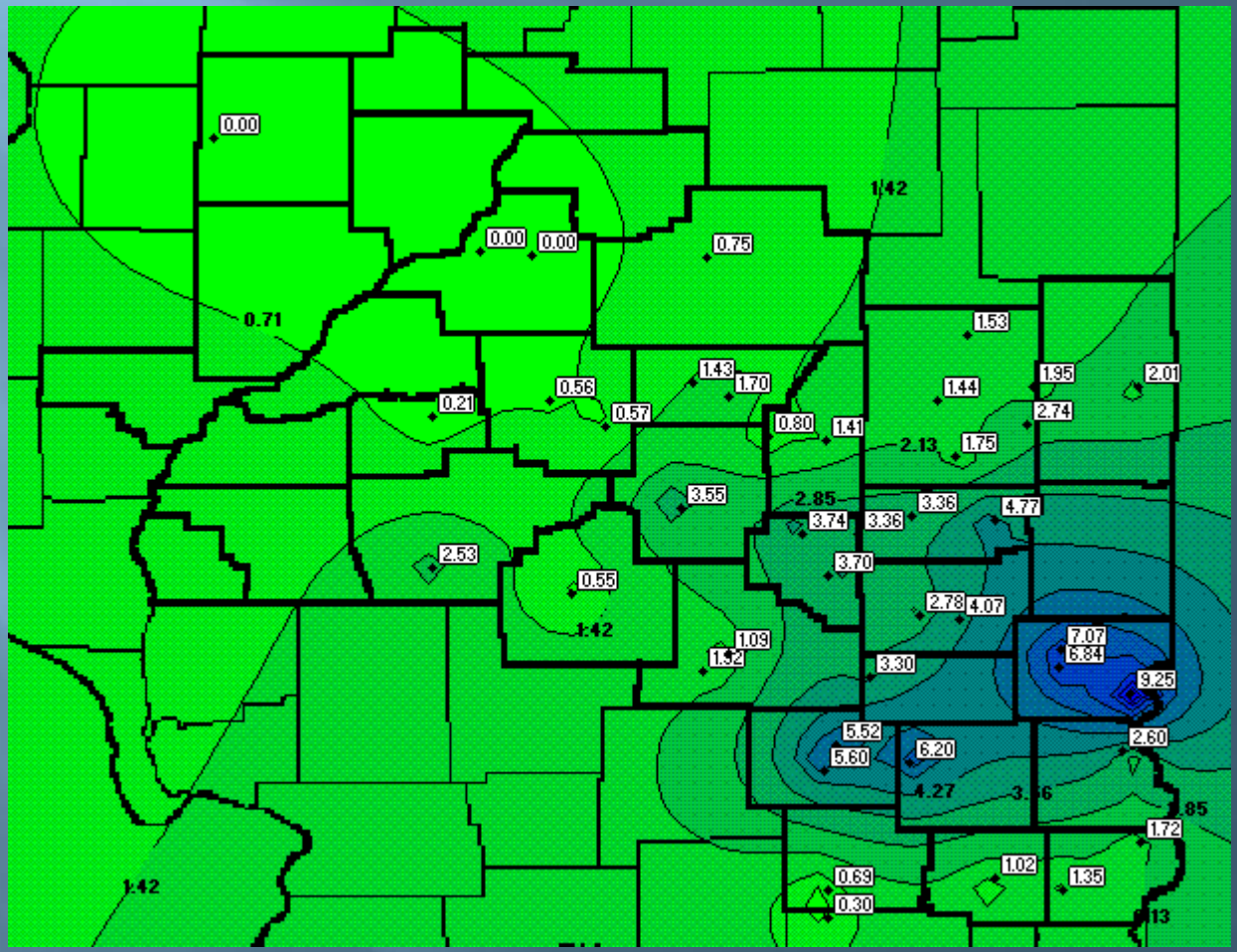
- Afternoon thunderstorms along I-70
- EF1 tornado in Lerna (Coles County)
- Additional storms developed overnight…fed by strong low-level jet
- Back-building storms for several hours produced 5 to 9 inches of rain along the I-70 corridor!
- West Union 1W: 9.25

  Newton 8NW: 6.20

  Effingham: 5.52

June 6-7

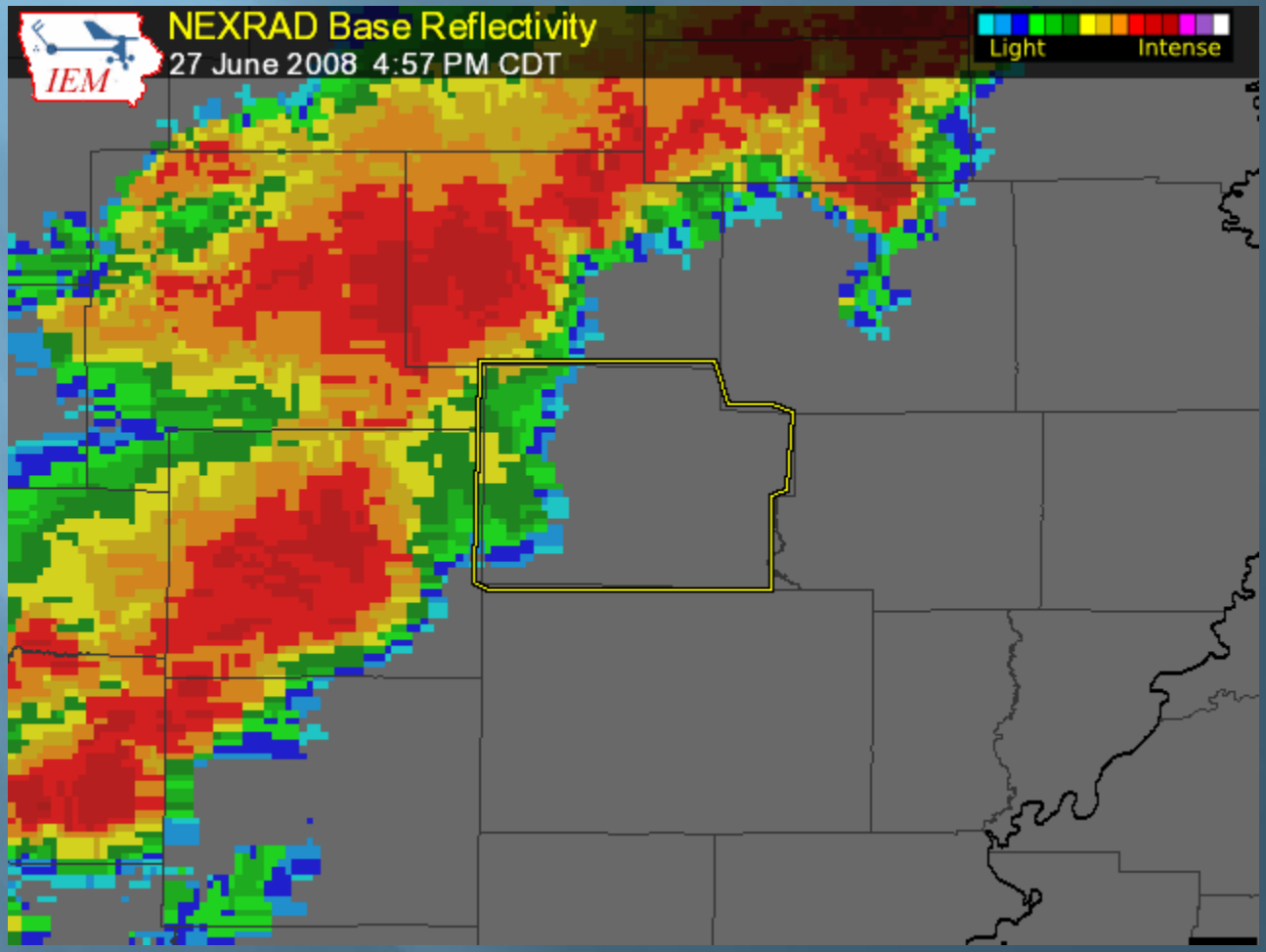
June 6-7


0.00
0.00
0.00
0.75
1.42
0.71
1.53
1.43
1.70
0.56
0.57
0.21
1.44
1.95
2.01
2.74
0.80
1.41
2.13
1.75
3.55
2.85
3.74
3.36
3.36
4.77
2.53
3.70
0.55
2.78
4.07
1.42
1.09
1.52
7.07
6.84
3.30
9.25
5.52
5.60
6.20
2.60
4.27
1.72
1.02
1.35
0.69
0.30
1.42

June 27

- Damaging wind event along and south of I-70
- Mesoscale Convective Vortex (MCV) was trigger for storms
- 50 to 70mph winds from Effingham and Clay counties eastward to the Indiana border

June 27

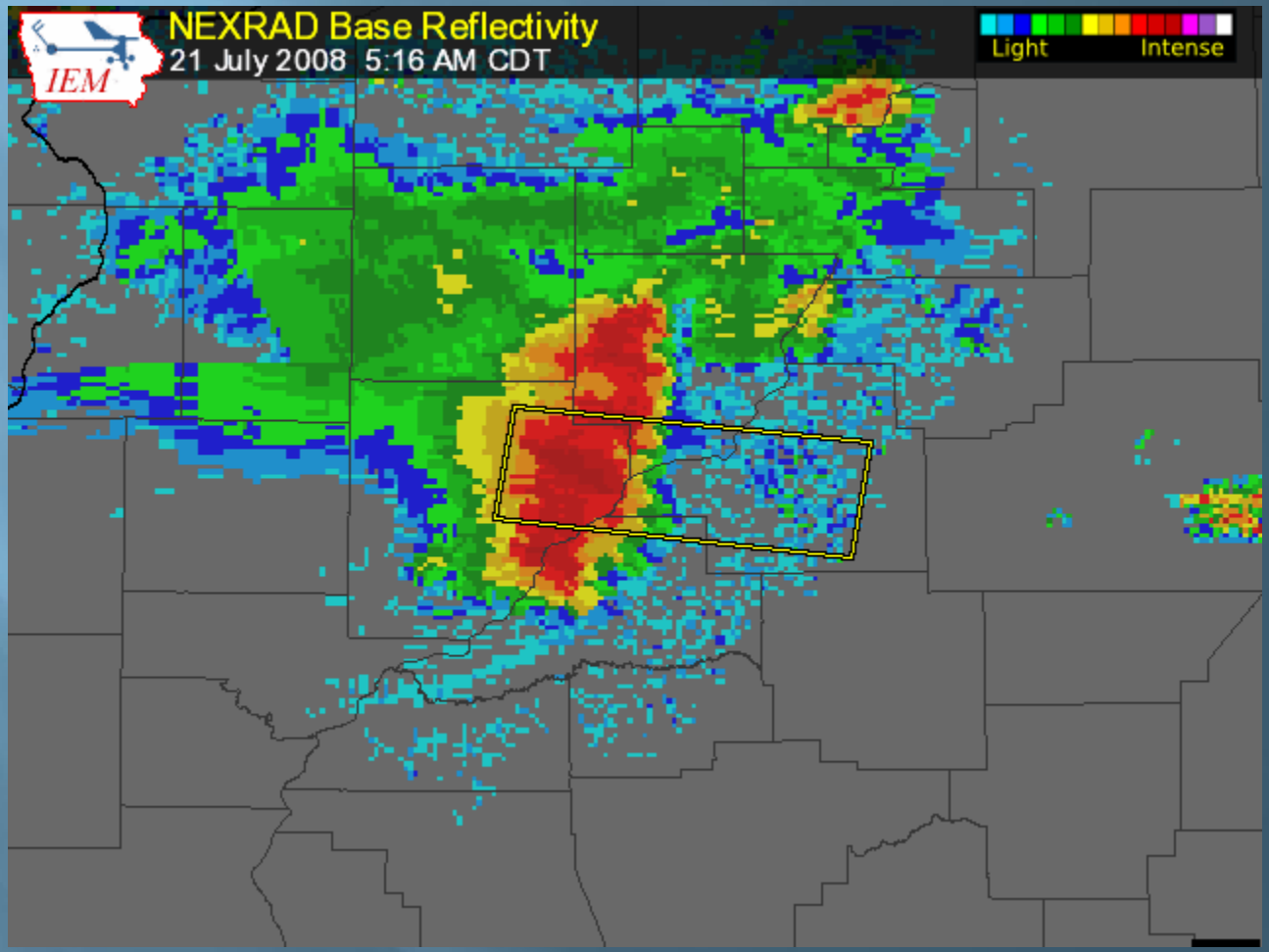

IEM
NEXRAD Base Reflectivity
27 June 2008 4:57 PM CDT
Light
Intense

June 27

July 21

- Severe storms developed across Iowa during the early morning hours, then raced eastward into the Illinois River Valley
- Very strong winds of between 60 and 80 mph
- 100,000 people without power in the Quad Cities…with numerous outages further east into the Peoria area

July 21


NEXRAD Base Reflectivity
21 July 2008 5:16 AM CDT
Light
Intense
IEM

July 21

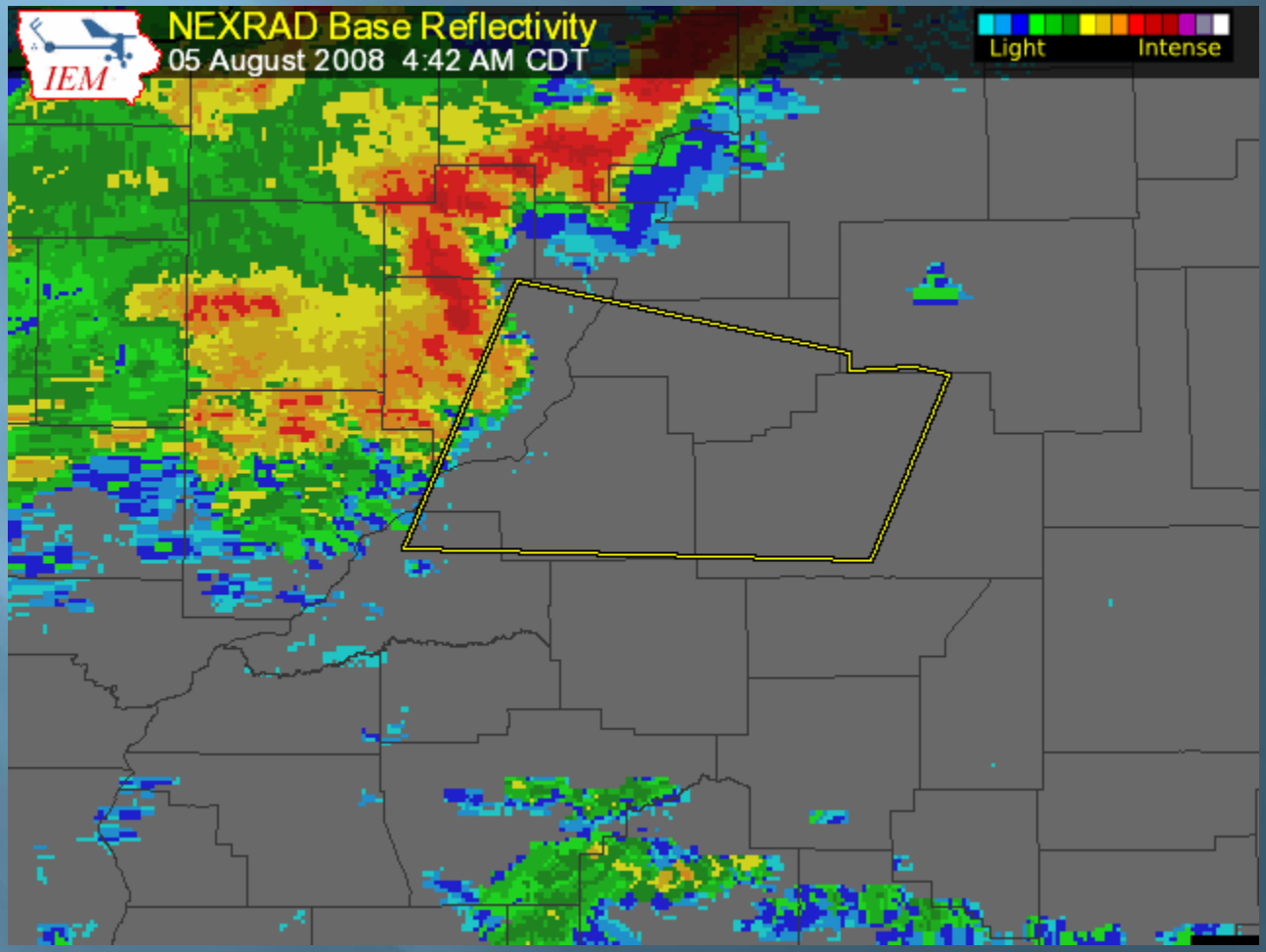
August 5

- Another damaging wind event in the Illinois River Valley
- Storms initiated across northeast Iowa during the early morning hours…then tracked along an outflow boundary into central Illinois
- Enhanced by vigorous mid-level wind max
- Widespread wind damage and power outages
- East Peoria: 70 mph

  Pekin: 65 mph

  Canton: 55 mph

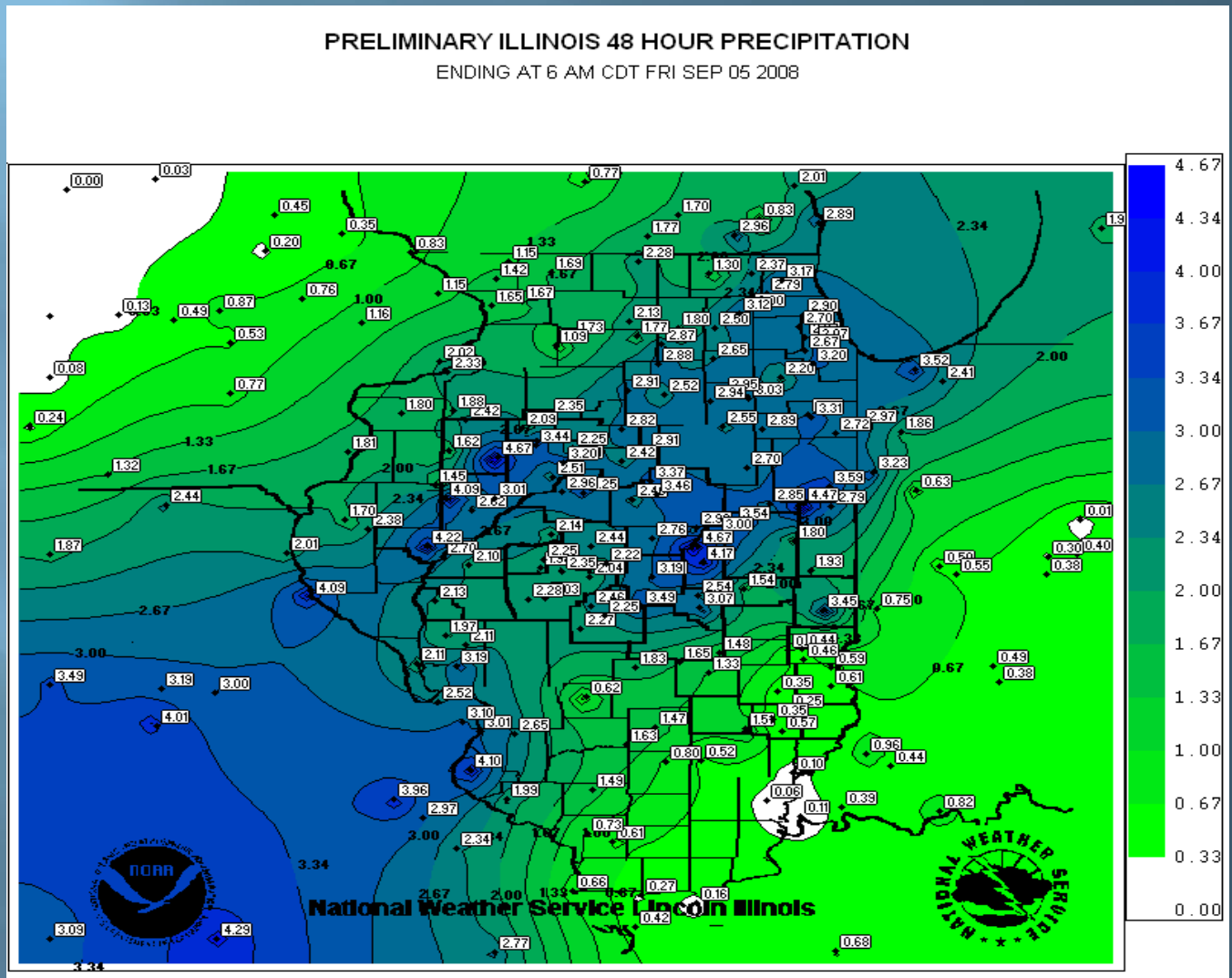
August 5


IEM
NEXRAD Base Reflectivity
05 August 2008 4:42 AM CDT
Light
Intense

September 3-4

- First of two hurricane remnants to affect IL in September
- Remnants of Hurricane Gustav tracked across southeast Illinois…bringing a swath of heavy rainfall from St. Louis to Chicago
- Widespread 2 to 4 inch amounts…with isolated higher totals

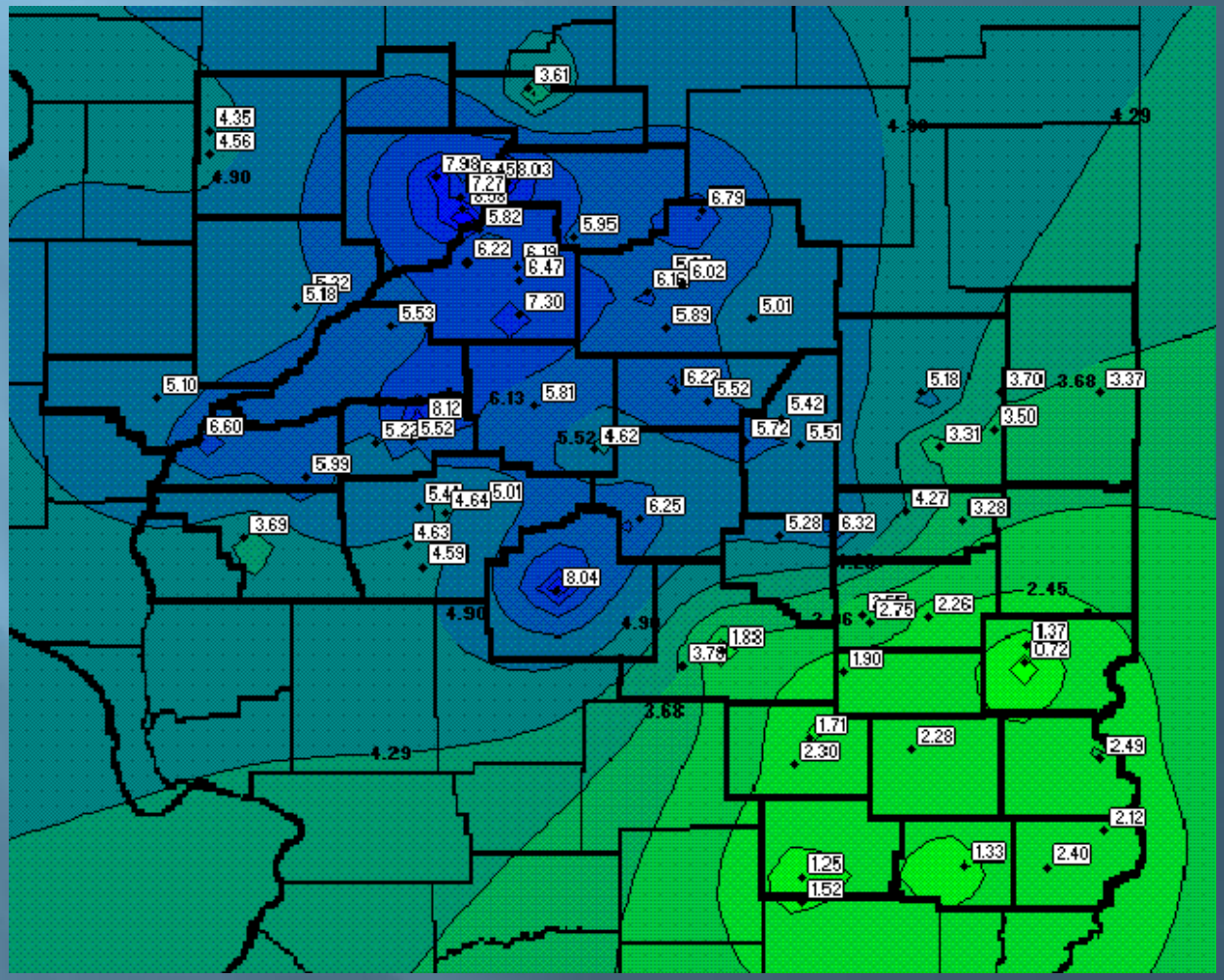
September 3-4



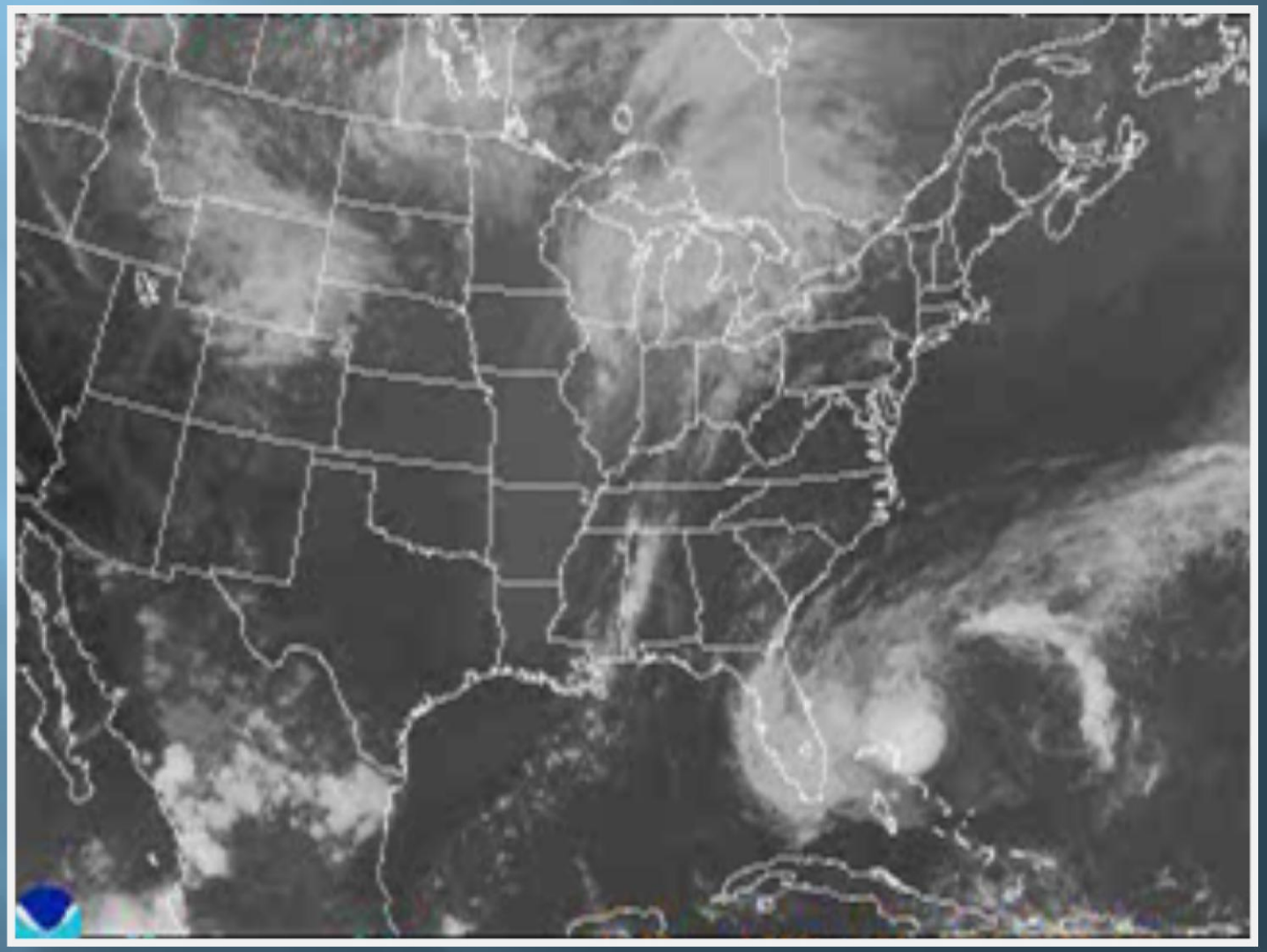
September 11-14

- Heavy rainfall west of I-57
- Initially associated with a warm front lifting northward through the area…then enhanced by remnants of Hurricane Ike
- Widespread 5 to 8 inch amounts
- Gusty winds along and east of Ike's track…with 40 to 50 mph gusts common along and east of I-57
- Lawrenceville airport clocked a gust of 60 mph

September 11-14

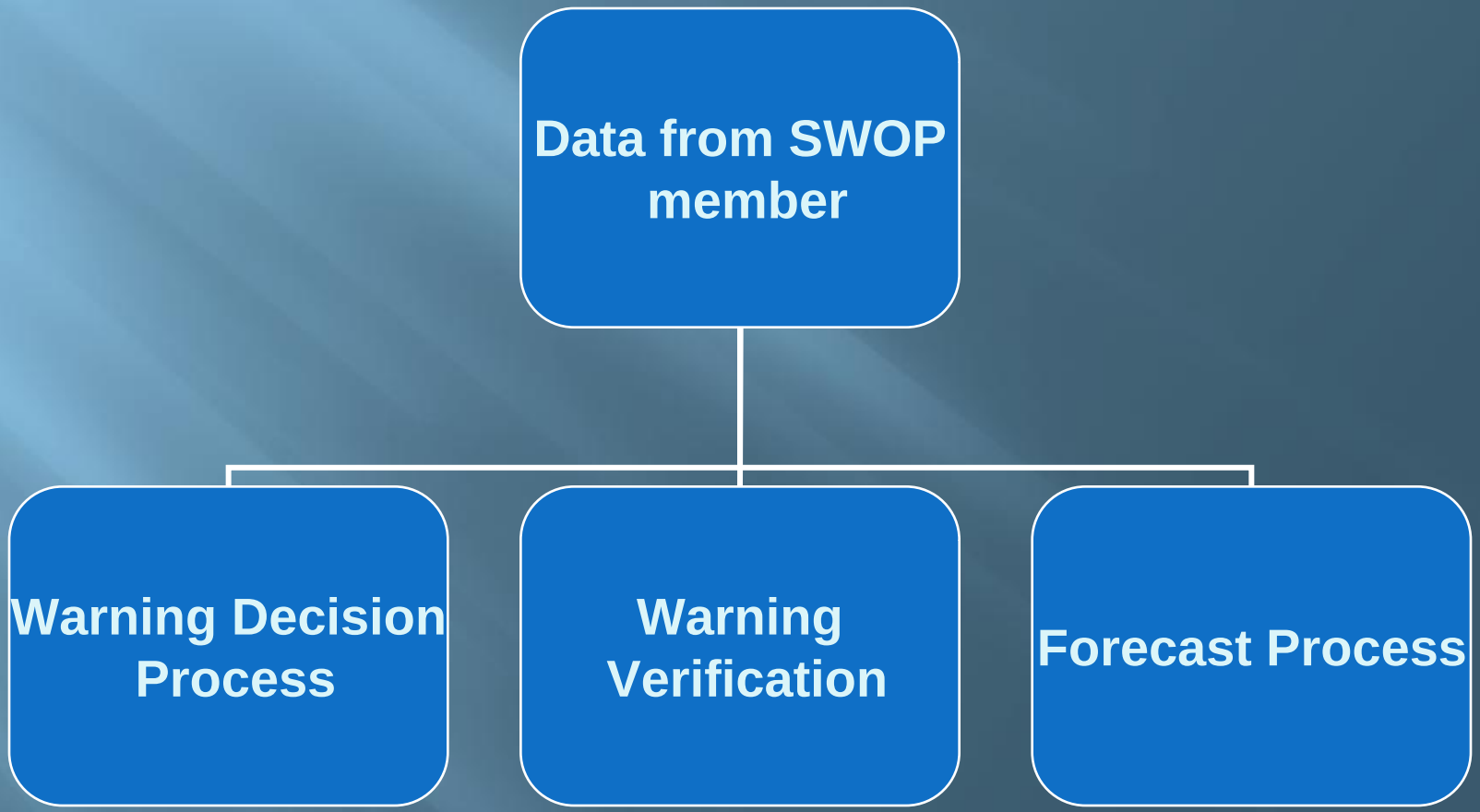


Hurricane Ike



Video clip courtesy of Paul Hadfield

Value of SWOP Reports



Severe Weather Reporting

- **ANY Storm Damage:** downed tree branches, structural damage
- **Hail Size:** report size of largest stones, compare to coin
- **Wind Speed:** estimate peak gusts
- **Flooding:** water flowing across roads
- Be as specific as possible and always include exact **LOCATIONS** and **TIMES**

Other Weather Reporting

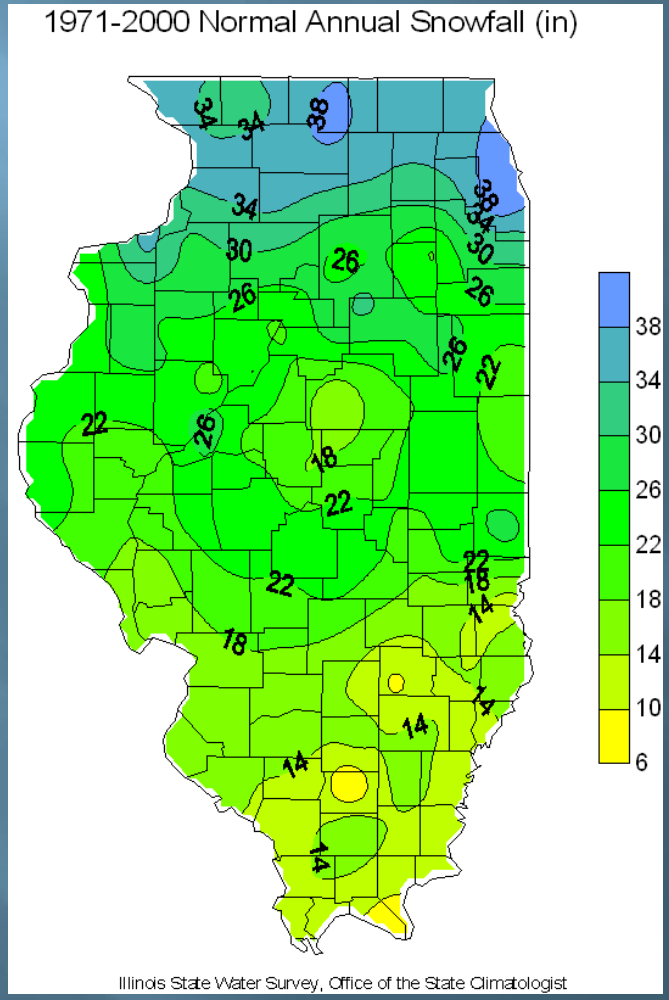
- **Rainfall totals: daily and/or event**
- **Snowfall/Snow Depth**
- **Extreme temperatures**
- Other: Feel free to let us know what's happening at your location!

How to Send Reports

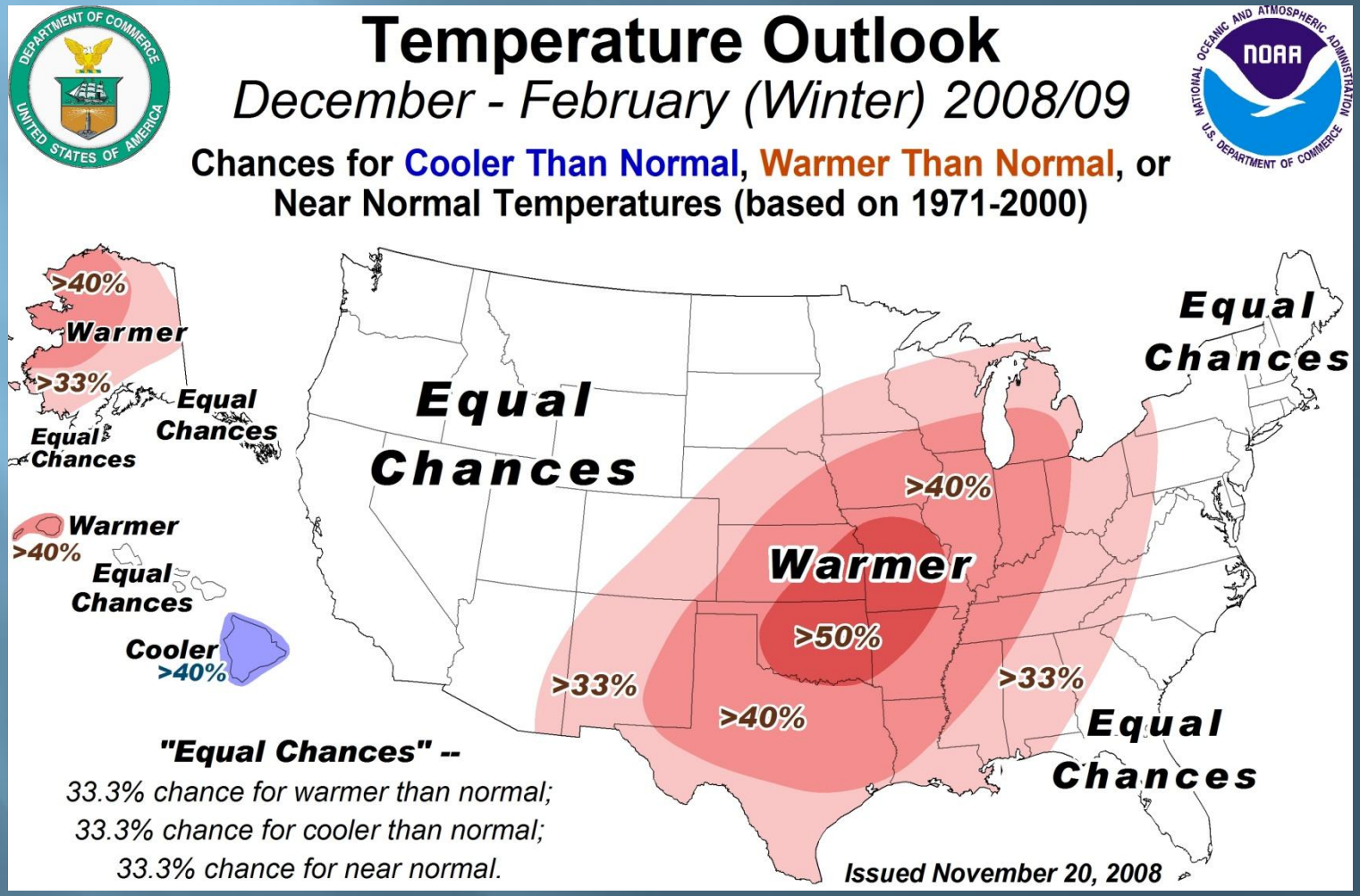
- eSpotter is the preferred method, as reports sent this way are received by NWS staff **immediately**
- **http://www.espotter.crh.noaa.gov/**
- SWOP e-mail account can also be used, although response may be slower. Please include LOCATION when using e-mail.
- **nwsliilx@noaa.gov**

Winter Weather Reporting

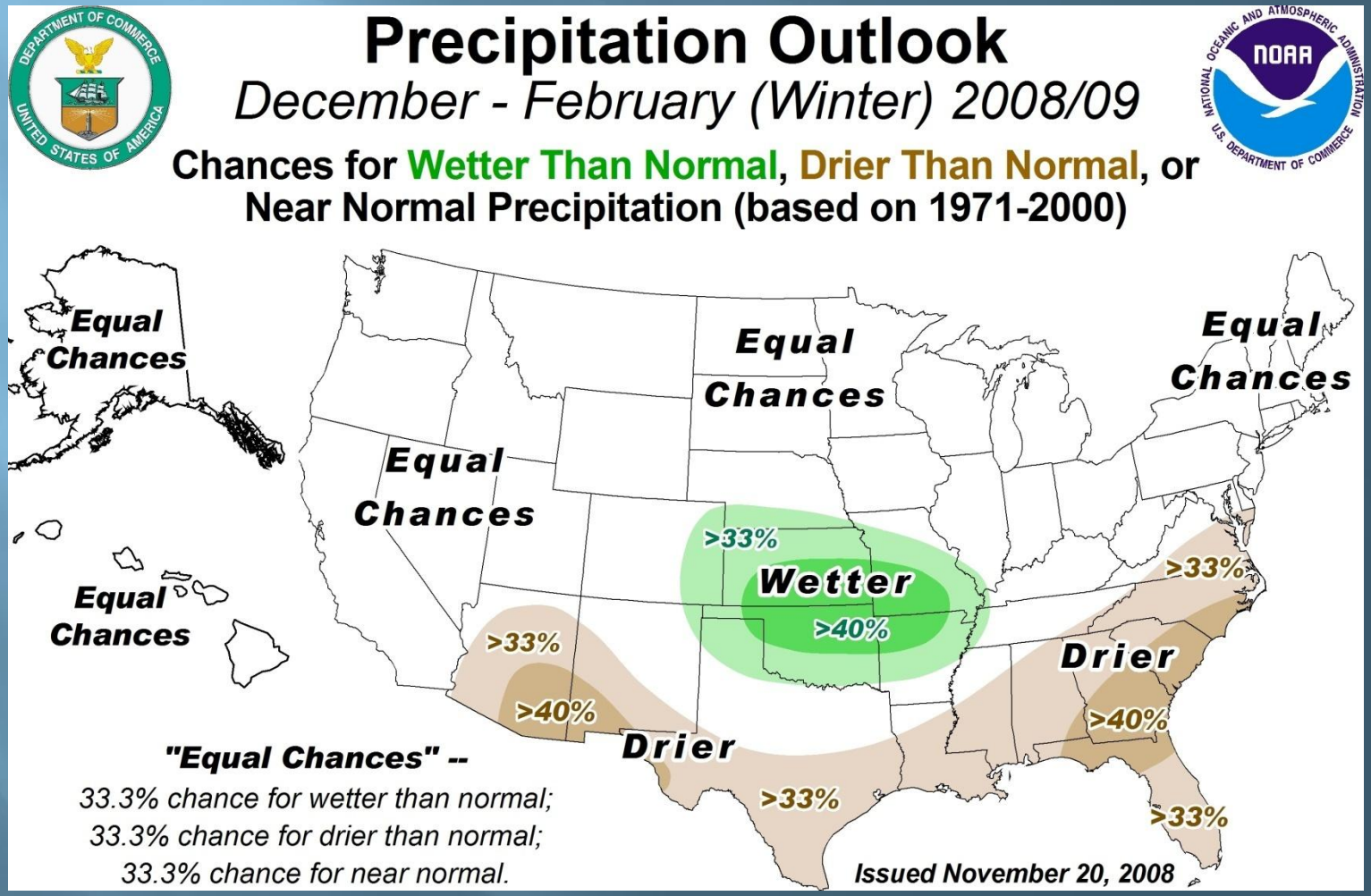
Average Annual Snowfall



2008-2009 Winter Outlook



2008-2009 Winter Outlook



What to report?

- **Time of Precipitation Onset:** this can help us assess our current accumulation forecasts
- **Type** (are you getting rain, snow, sleet, freezing rain, or a mixture?)
- **Snowfall measurements** (both during and after the event)

Precipitation Type

Winter Weather Reporting

- **Snowfall** is the amount of NEW snow that has occurred since your last measurement
- **Snow Depth** is the total amount of snow on the ground (both old and new)
- Both can be measured with an official NWS snowstick…or a basic yardstick

How to Measure Snow

- Select a flat, grassy location well away from obstructions (drifting effect)
- Do **NOT** take measurements on concrete or asphalt surfaces (melting effect)
- Do **NOT** include snow drifts for snowfall
- Take an average of at least **5** readings and use this as your official total

Winter Weather Websites

- **Long-range outlooks:** http://www.cpc.noaa.gov/products/forecasts/
- **Probabilistic forecasts:** http://www.hpc.ncep.noaa.gov/wwd/winter_wx.shtml
- **El-Nino/La Nina information:** http://www.cpc.noaa.gov/products/precip/CWlink/MJO/enso.shtml
- **Winter Weather Safety and Awareness:** http://www.nws.noaa.gov/om/winter/
- **Winter Storms in Illinois (State Climatologist):** http://www.sws.uiuc.edu/atmos/statecli/Winter/winter.htm

More Notes About SWOP

- We do **NOT** expect you to "chase" severe weather
- We do **NOT** expect you to risk injury or death to get reports to us
- **SAFETY FIRST!**

More Notes About SWOP

- If you are a **trained spotter**:

  Follow your local county or city reporting guidelines **FIRST**. Then if you choose, you can pass the info onto us later.

- If you cannot contact your local agency, or only have precipitation/non severe weather to report, then contact us.


Questions?
Matthew Brewer
Deland 1S